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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/938,075

08/23/2001

Mohammad Eslamy

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9873

20583

7590

04/24/2003

PENNIE AND EDMONDS
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EXAMINER

NGUYEN, JOSEPH H

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/938,075

Applicant(s)

ESLAMY, MOHAMMAD

Examiner

Joseph Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-15,20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al in view of Shishido et al.

Regarding claim 9, Johnson et al discloses on figure 6 a primary substrate 12; a metal heat sink plate 28 whose thermal coefficient of expansion is substantially different from that of said primary substrate, having a first side and an opposing second side where said primary substrate is attached to said first side; and an supplemental substrate 29 being attached to said second side of said metal heat sink plate 28 where said metal heat sink plate 28 is between said primary substrate 12 and said supplemental substrate 29. Johnson et al does not disclose said supplemental substrate is constructed from a material having a substantially similar coefficient of thermal expansion as that of said primary substrate. However, Shishido et al discloses on figure 2 said supplemental substrate 30a constructed from a material having a substantially similar coefficient of thermal expansion as that of said primary substrate 12. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Johnson et al by having said supplemental substrate constructed from a material having a substantially similar coefficient of thermal

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expansion as that of said primary substrate for the purpose of obtaining substantially no warpage in the resulting package as taught by Shishido (col. 4, lines 10-11).

Regarding claims 10-15, Johnson et al and Shishido together disclose all the structure set forth in claims 10-15.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al and Shishido et al as applied to claim 1 above, and further in view of Hamzehdoost et al.

Regarding claim 20, Johnson et al and Shishido et al disclose substantially all the structure set forth in the claimed invention except the primary substrate comprising a die attach cavity wherein the semiconductor chip being attached to the first side of the metal heat sink within the die attach cavity. However, Hamzehdoost et al discloses on figure 5 the primary substrate 226 comprising a die attach cavity 206 wherein the semiconductor chip 202 being attached to the first side of the metal heat sink within the die attach cavity. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Johnson et al and Shishido et al by having except the primary substrate comprising a die attach cavity wherein the semiconductor chip being attached to the first side of the metal heat sink within the die attach cavity for the purpose of providing a reliable way of obtaining direct access to the back of an integrated circuit chip as taught by Hamzehdoost et al (col. 3, lines 15-16).

Response to Arguments

Applicant's arguments filed on 2/26/2003 have been fully considered but they are not persuasive.

With respect to claim 1, applicant argues that Shishido does not show or suggest a metal heat sink plate or any other part of the chip carrier that has a thermal coefficient of expansion that is substantially different from that of the primary substrate. However, the only difference between the claimed invention and Johnson is said supplemental substrate being constructed from a material having a substantially similar coefficient of thermal expansion as that of said primary substrate, and Shishido discloses on figure 2 said supplemental substrate 30a is constructed from a material having a substantially similar coefficient of thermal expansion as that of said primary substrate 12. Therefore, the combination of Johnson and Shishido would read on the claimed invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN
April 22, 2003



**EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800**